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TEXAS INSTRUMENTS INCORPORATED				
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DALLAS, TX 75265				
EXAMINER				
FAULK, DEVONAE				
ART UNIT		PAPER NUMBER		
2614				
NOTIFICATION DATE		DELIVERY MODE		
10/08/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com

Office Action Summary

Application No.

10/628,159

Applicant(s)

FEDIGAN, STEPHEN JOHN

Examiner

DEVONA E. FAULK

Art Unit

2614

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 0210.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7, 8 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2 and 8 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 7 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/06)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, regarding claim 1, filed 7/12/10 have been fully considered but they are not persuasive.
2. Regarding claim 1, the applicant asserts that the prior art fails to read on radially offset and that the voice coil 30 clearly cannot have an axis radially spaced offset from its own axis. The examiner asserts that the prior art reads on the radially offset language. The examiner asserts that Pulfrey's 28 and 30 (read on first and second unit) read on the language as recited (see Figure 2). It is implicit that 28 and 30 are disposed coaxially about an axis. Regarding the voice coil radially spaced offset from its own axis, the examiner asserts that applicant is arguing something that is not claimed. The claim recites "*a variable reluctance sensor device; said sensor device including a first unit fixed relative to said fixed position; and a second unit affixed to said speaker cone effecting relative motion between said first unit and said second unit through motion of said speaker cone at a position on said cone, said first unit and said second unit disposed coaxially about an axis radially offset from said central axis;*". The examiner asserts that this does not equate to the voice coil being radially spaced offset from its own axis. The claims just recite a first unit and second disposed coaxially about an axis. First unit and second unit are not specific. The examiner is applying the same prior art to the claims. The examiner suggest the applicant make amendments to claim 1.

3. Applicant's arguments, regarding claims 8 and 21, filed 7/12/10, with respect to 8 and 21 have been fully considered and are persuasive. The rejection of claims 8 and 21 has been withdrawn. The examiner notes that the amendment to claims 8 and 21 in light of the entire claim language is what cause the examiner to withdraw the rejection. The prior art or combination thereof fails to make obvious the invention as a whole.

Claim Objections

4. Claims 3 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pulfrey (US 5,493,620) in view of Saik et al. (US 4,312,118).

Regarding claim 1, Pulfrey discloses an apparatus for measuring speaker cone displacement relative to a fixed position in an audio speaker having a voice coil aligned with the cone along an axis (cone 21, voice coil 30, Figure 2; column 2, lines 19-55; column 5, lines 5-15) with the speaker, the apparatus comprising:

(a) a variable reluctance sensor device (cone motion velocity sensing structure, 40; column 4, lines 53-61); said sensor device including a first unit fixed relative to said fixed position (annular cylindrical permanent magnet 28, Figure 2; column 5, lines 9-15), and the a second unit affixed to said speaker cone effecting relative motion between said first unit and said second movement through motion of said speaker cone at a position on said cone, said first and second unit disposed coaxially about an axis radially offset from said central axis (voice coil 30; column 5, lines 5-20,; Figure 2; it is implicit that 28 and 30 are disposed coaxially about an axis);

(b) a signal injecting circuit coupled for injecting a predetermined input signal into-said one of said first and second units (signal amplification channel 10, Figure 2; predetermined input signal is the input from input signal source at terminals 13 of the signal amplification channel; column 4, line 61-column 5, line 5); and

(c) a signal receiving circuit coupled with said one of said first and second units-for receiving a signal resulting from modulation of said input signal due to variation of reluctance of said sensor device caused by displacement of said first unit relative to said second unit and for generating an indicating signal based upon said resulting signal; at least one signal characteristic of said indicating signal being related with said cone displacement (active differentiating circuit 60, Figure 2 reads on signal receiving

circuit as claimed; column 6, lines 6-13 and lines 34-45; sensing coil 47, Figure 2; column 6, lines 9-13).

Pulfrey teaches of a coil but fails to disclose that the coil is attached to or suspended from the cone. Saik discloses a coil suspended from a cone (coil 30 is suspended from cone 22; column 5, lines 2-6). It would have been obvious to modify Pulfrey so that the coil is attached to the cone for the benefit of securing the coil in the loudspeaker.

Regarding claim 2, Pulfrey as modified by Saik discloses wherein said first unit is comprises one of an electromagnetic coil structure and a core structure; and wherein said second unit comprises the other of said electromagnetic coil structure and said core structure (See Pulfrey as applied above to the rejection of claim 1). All elements of claim 2 are comprehended by the rejection of claim 1.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pulfrey (US 5,493,620) in view of Saik et al. (US 4,312,118) in further view of Joseph et al. (US 4,360,707).

Regarding claim 7, Pulfrey as modified by Saik discloses wherein said first unit comprises one of an electromagnetic coil structure and a core structure; and wherein said second unit comprises the other of said electromagnetic coil structure and said

core structure See Pulfrey and Saik as applied above to claims 1 and 5). All elements of claim 7 are comprehended by the rejection of claim 5.

Allowable Subject Matter

8. Claims 8 and 21 are allowed.

9. The following is an examiner's statement of reasons for allowance: Regarding claims 8 and 21, prior art Pulfrey discloses an apparatus for measuring speaker cone displacement relative to a fixed position in an audio speaker having a voice coil aligned with the cone along an axis (cone 21, voice coil 30, Figure 2; column 2, lines 19-55; column 5, lines 5-15) with the speaker, the apparatus comprising:

(a) a variable reluctance sensor device (cone motion velocity sensing structure, 40; column 4, lines 53-61); said sensor device including a first unit fixed relative to said fixed position (annular cylindrical permanent magnet 28, Figure 2; column 5, lines 9-15), and the a second unit affixed to said speaker cone effecting relative motion between said first unit and said second movement through motion of said speaker cone at a position radially offset from said axis (voice coil 30; column 5, lines 5-20);(b) a signal injecting circuit coupled for injecting a predetermined input signal into-said one of said first and second units (signal amplification channel 10, Figure 2; predetermined input signal is the input from input signal source at terminals 13 of the signal amplification channel; column 4, line 61-column 5, line 5); and

(c) a signal receiving circuit coupled with said one of said first and second units-for receiving a signal resulting from modulation of said input signal due to variation of reluctance of said sensor device caused by displacement of said first unit relative to

said second unit and for generating an indicating signal based upon said resulting signal; at least one signal characteristic of said indicating signal being related with said cone displacement (active differentiating circuit 60, Figure 2 reads on signal receiving circuit as claimed; column 6, lines 6-13 and lines 34-45; sensing coil 47, Figure 2; column 6, lines 9-13).

Prior art Saik discloses a coil suspended from a cone (coil 30 is suspended from cone 22; column 5, lines 2-6).

Prior art Son discloses es an electromagnetic coil structure that operates as at least part of a high pass filter (Figures 2 and 3; column 3, lines 38-52; column 4, lines 33-40). All filters implicitly have a corner frequency.

Regarding claims 8 and 21, the prior art or combination thereof fails to disclose or make obvious the claim language as a whole.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVONA E. FAULK whose telephone number is (571)272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devona E. Faulk/
Primary Examiner, Art Unit 2614